

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

AR BUTUS BIOPHARMA CORPORATION
and GENEVANT SCIENCES GmbH,

Plaintiffs,

v.

MODERNA, INC. and MODERNATX, INC.,

Defendants.

C.A. No. 22-252-MSG

MODERNA, INC. and MODERNATX, INC.,

Counterclaim-Plaintiffs,

v.

AR BUTUS BIOPHARMA CORPORATION
and GENEVANT SCIENCES GmbH,

Counterclaim-Defendants.

JOINT CLAIM CONSTRUCTION CHART

Pursuant to the Court's March 21, 2023 Scheduling Order as amended, *see, e.g.*, D.I. 72 and D.I. 109, Plaintiffs Arbutus Biopharma Corporation and Genevant Sciences GmbH ("Plaintiffs") and Defendants Moderna, Inc. and ModernaTX, Inc. ("Defendants") have met and conferred, and present the following Joint Claim Construction Chart for the terms in dispute for the six patents that Plaintiffs have asserted Defendants infringe: U.S. Patent Nos. 8,058,069 (the "'069 patent"); 8,492,359 (the "'359 patent"); 8,822,668 (the "'668 patent"); 9,364,435 (the "'435

patent"); 9,504,651 (the "'651 Patent"); and 11,141,378 (the "'378 patent").¹

The appended charts below identify the parties' proposed constructions for the disputed claim terms and the parties' identification of intrinsic evidence in support of their proposed constructions. Each party reserves the right to supplement the charts below with additional evidence and to rely upon additional intrinsic evidence and/or extrinsic evidence in its claim construction briefs to respond to or rebut evidence and arguments made by another party, and to rely upon another party's intrinsic evidence.

The parties have agreed to defer resolution of issues of indefiniteness until later in the litigation unless otherwise instructed by the Court. Defendants do not waive and instead expressly reserve their right to argue at the appropriate time, including, but not limited to, during expert discovery, summary judgment, and/or at trial, that any proposed and non-proposed terms found in specific claims are indefinite, are not enabled, or otherwise lack sufficient support in the specification. Plaintiffs disagree with Moderna's approach of seeking construction for some terms now, while reserving the right to argue indefiniteness for those same terms at a later date (even under Moderna's proposed construction). Plaintiffs reserve all rights to defend against all such allegations whenever raised, including on the basis of waiver.

¹ Throughout this document, to the extent a disclosure is cited in the '069, '359, '668, '435, or '378 patents, the equivalent disclosures in the other patents are also incorporated herein.

Dated: August 29, 2023

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**“wherein at least 70% / at least 80% / about 90% of the mRNA in the formulation is fully encapsulated in the lipid vesicles” /
“fully encapsulated”**
(’651 Patent, Claims 1, 13, 14)

Plaintiffs' Proposal & Intrinsic Evidence²	Defendants' Proposal & Intrinsic Evidence
<p>“wherein at least 70% / at least 80% / about 90% of the mRNA in the formulation is contained inside the lipid vesicles”</p> <p><u>Intrinsic Evidence:</u></p> <p>’651 Patent, 1:19-2:8, 2:13-67, 3:17-35, 5:30-5:44, 5:56-62, 8:5-13, 6:13-19, 9:20-51, 12:57-13:2, 14:13-15:15, 15:19-56, 16:25-17:25, 17:54-18:2, 18:29-42, 18:67-19:2, Figs. 5-11</p> <p>U.S. Patent Application No. 14/304,578, Specification (June 13, 2014)</p> <p>U.S. Patent Application No. 14/304,578, Claims (June 13, 2014)</p> <p>U.S. Patent Application No. 14/304,578, Non-Final Rejection (Aug. 14, 2014)</p> <p>U.S. Patent Application No. 14/304,578, Response to Office Action (Oct. 22, 2014)</p> <p>U.S. Patent Application No. 14/304,578, Declaration of James Heyes, Ph.D. (Oct. 22, 2014)</p> <p>U.S. Patent Application No. 14/304,578, Third Party Submission (Jan. 5, 2015)</p>	<p>“fully, as distinct from partially, encapsulated”</p> <p><u>Intrinsic Evidence:</u></p> <p>’651 patent at Title; Abstract; 1:34-43; 2:3-8; 2:13-67; 5:30-40; 5:59-62; 8:5-12; 9:35-51; 10:54-11:2; all claims; Examples 1-8; all refs incorporated by reference</p> <p>’651 patent FH:</p> <ul style="list-style-type: none"> • 06/13/2014 App. • 08/14/2014 Non-Final Rejection • 10/22/2014 Office Action Resp. and Affidavit • 02/13/2015 Non-Final Rejection • 05/12/2015 Office Action Resp. and Affidavit • 06/19/2015 Final Rejection • 08/18/2015 RCE and Amendment • 10/09/2015 Non-Final Rejection • 12/14/2015 Office Action Resp. and Affidavit • 04/15/2016 Final Rejection • 05/19/2016 Office Action Resp. and Affidavit • 10/03/2016 Non-Final Rejection • 10/19/2016 Notice of Allowance <p>App. 10/611,274 FH:</p> <ul style="list-style-type: none"> • 11/17/2010 Notice of Allowance

² In providing the following disclosures, Plaintiffs do not admit the status of any cited reference as intrinsic evidence.

**“wherein at least 70% / at least 80% / about 90% of the mRNA in the formulation is fully encapsulated in the lipid vesicles” /
“fully encapsulated”**
(’651 Patent, Claims 1, 13, 14)

Plaintiffs' Proposal & Intrinsic Evidence ²	Defendants' Proposal & Intrinsic Evidence
U.S. Patent Application No. 14/304,578, Non-Final Rejection (Feb. 13, 2015)	<ul style="list-style-type: none"> • 05/11/2010 Affidavit • 05/11/2010 Office Action Resp. • 12/11/2009 Non-Final Rejection
U.S. Patent Application No. 14/304,578, Response to Office Action (May 12, 2015)	Prov. App. No. 60/392,887
U.S. Patent Application No. 14/304,578, Declaration of James Heyes, Ph.D. (May 12, 2015)	
U.S. Patent Application No. 14/304,578, Final Rejection (June 19, 2015)	
U.S. Patent Application No. 14/304,578, Response to Office Action (Aug. 18, 2015)	
U.S. Patent Application No. 14/304,578, Non-Final Rejection (Oct. 9, 2015)	
U.S. Patent Application No. 14/304,578, Response to Office Action (Dec. 14, 2015)	
U.S. Patent Application No. 14/304,578, Declaration of James Heyes, Ph.D. (Dec. 14, 2015)	
U.S. Patent Application No. 14/304,578, Final Rejection (Apr. 15, 2016)	
U.S. Patent Application No. 14/304,578, Response to Office Action (May 19, 2016)	

**“wherein at least 70% / at least 80% / about 90% of the mRNA in the formulation is fully encapsulated in the lipid vesicles” /
“fully encapsulated”**
(’651 Patent, Claims 1, 13, 14)

Plaintiffs' Proposal & Intrinsic Evidence ²	Defendants' Proposal & Intrinsic Evidence
U.S. Patent Application No. 14/304,578, Declaration of James Heyes, Ph.D. (May 19, 2016)	
U.S. Patent Application No. 14/304,578, Non-Final Rejection (Oct. 3, 2016)	
U.S. Patent Application No. 14/304,578, Notice of Allowability (Oct. 19, 2016)	
US Application No. 13/684,066, Response to Office Action (Jan. 7, 2016)	
US Application No. 13/684,066, Final Rejection (May 3, 2016)	
U.S. Application No. 10/611,274, Response to Office Action (July 24, 2007)	
U.S. Application No. 10/611,274, Non-Final Rejection (Oct. 4, 2007)	
U.S. Application No. 10/611,274, Response to Office Action (Apr. 4, 2008)	
U.S. Application No. 10/611,274, Examiner Interview Summary (June 2, 2009)	
U.S. Application No. 10/611,274, Response to Office Action (June 5, 2009)	

**“wherein at least 70% / at least 80% / about 90% of the mRNA in the formulation is fully encapsulated in the lipid vesicles” /
“fully encapsulated”**
(’651 Patent, Claims 1, 13, 14)

Plaintiffs' Proposal & Intrinsic Evidence ²	Defendants' Proposal & Intrinsic Evidence
<p>U.S. Application No. 10/611,274, Non-Final Rejection (Aug. 18, 2009)</p> <p>U.S. Application No. 10/611,274, Response to Office Action (May 11, 2010)</p> <p>U.S. Application No. 10/611,274, Declaration of Dr. Jeffrey J. Wheeler (May 11, 2010)</p> <p>U.S. Application No. 10/611,274, Response to Office Action (Aug. 6, 2010)</p> <p>WO 00/003683</p> <p>WO 00/062813</p> <p>WO 02/087541</p> <p>WO 05/007196</p> <p>WO 98/051278</p> <p>WO 02/034236</p> <p>WO 05/026372</p> <p>U.S. Patent No. 7,803,397</p> <p>U.S. Patent No. 6,734,171</p> <p>Heyes et al., <i>Cationic lipid saturation influences intracellular</i></p>	

**“wherein at least 70% / at least 80% / about 90% of the mRNA in the formulation is fully encapsulated in the lipid vesicles” /
“fully encapsulated”**
(’651 Patent, Claims 1, 13, 14)

Plaintiffs' Proposal & Intrinsic Evidence ²	Defendants' Proposal & Intrinsic Evidence
<p><i>delivery of encapsulated nucleic acids</i>, 107 Journal of Controlled Release 276-287 (2005)</p> <p>Spagnou, S. et al., <i>Lipidic Carriers of siRNA: Differences in the Formulation, Cellular Uptake, and Delivery with Plasmid DNA</i>, 43 Biochemistry 13348-13356 (2004)</p> <p>Gershon et al, <i>Mode of Formation and Structural Features of DNA-Cationic Liposome Complexes Used for Transfection</i>, 32 Biochemistry 6143-7151 (1993)</p> <p>Jeffs et al. <i>A Scalable, Extrusion-Free Method for Efficient Liposomal Encapsulation of Plasmid DNA</i>, 22 Pharmaceutical Research 362-372 (2005).</p> <p>Maclachlan, <i>Liposomal Formulations for Nucleic Acid Delivery</i>, ANTISENSE DRUG TECHNOLOGIES (2d Ed.) 237-270 (2007)</p>	

“mol % of the total lipid present in the particle”

('069 Patent, Claims 1, 8, 15, 20, 21; '359 Patent, Claims 1, 7, 9, 10, 11, 12, 13, 18, 19; '668 Patent, Claims 1, 8, 10, 15; '435 Patent, Claims 1, 4, 7, 8; '378 Patent, Claims 1, 2, 7, 13, 18, 24, 25)

Plaintiffs' Proposal & Intrinsic Evidence³	Defendants' Proposal & Intrinsic Evidence
<p>Plain and ordinary meaning, <i>i.e.</i>, “mol % of the total lipid present in the particle”</p> <p>The recited “mol %” ranges are understood to encompass their standard variation based on the number of significant figures recited in the claim.</p> <p>Intrinsic Evidence:</p> <p>'378 patent, 3:36-4:17, 4:38-5:67, 6:4-49, 11:42-12:19, 13:20-39, 14:50-64, 15:35-49, 16:25-40, 16:65-17:3, 18:4-20, 18:21-23:29, 24:52-25:62, 30:7-67, 48:30-62:27, 63:6-64:3, 70:1-88:10, claims 2, 7, 13, 18, 24, 25, 29, Figs. 1-22</p> <p>'069 patent, claims 1, 8, 14, 15, 20, 21</p> <p>'359 patent, claims 1, 7, 9, 10, 11, 12, 13, 18, 19</p> <p>'668 patent, claims 1, 8, 10, 15</p> <p>'435 patent, claims 1, 4, 7, 8, 12</p> <p>U.S. Patent Application No. 17/227,802, Claims (Apr. 12, 2021)</p> <p>U.S. Patent Application No. 17/227,802, Non-Final Rejection (June 14, 2021)</p>	<p>“__ mol % of the total lipid present in the finished lipid particle”</p> <p>Where the asserted claims do not recite “about __ mol %,” Moderna contends that the recited “__ mol%” ranges are understood as the exact ranges recited in the claim.</p> <p>Intrinsic Evidence:</p> <p>'069 patent, Claims 1, 8, 14, 15, 20, 21</p> <p>'359 patent, Claims 1, 7, 9, 10, 11, 12, 13, 18, 19</p> <p>'668 patent, Claims 1, 8, 10, 15</p> <p>'435 patent, Claims 1, 4, 7, 8, 12</p> <p>'378 patent, Claims 1, 2, 7, 13, 18, 24, 25, 29</p> <p>'069 patent: Title; Abstract; 2:65-3:56; 5:44-6:3; 11:13-36; 14:12-26; 18:40-19:8; 19:39-21:42; 22:30-42; 23:61-24:67; 49:56-62; 50:55-51:40; 57:11-23; 57:47-60:44; 68:13-48; Tables 2, 4, 6, 7; 76:54-77:13; 80:19-45; Examples 1 to 11; all refs incorporated by reference.</p> <p>Prov. App. No. 61/045,228</p> <p>IPR2018-00739, Papers 2, 12, 15, 24, 28, 34, 41, 49, 50, 51, 55, Exs. 1007, 1019, 1020, 1021, 1022, 2009, 2028, 2040; Appeal Briefing and Opinion</p> <p>IPR2019-00554, Papers 1, 7, 8, 15, 21, 30, 39, 40, Exs. 1008, 1020, 1025, 2001, 2002, 2003, 2004, 2005, 2006, 2028, 2030, 2031, 2033, 2043; Appeal Briefing and Opinion</p>

³ In providing the following disclosures, Plaintiffs do not admit the status of any cited reference as intrinsic evidence.

“mol % of the total lipid present in the particle”

('069 Patent, Claims 1, 8, 15, 20, 21; '359 Patent, Claims 1, 7, 9, 10, 11, 12, 13, 18, 19; '668 Patent, Claims 1, 8, 10, 15; '435 Patent, Claims 1, 4, 7, 8; '378 Patent, Claims 1, 2, 7, 13, 18, 24, 25)

Plaintiffs' Proposal & Intrinsic Evidence³	Defendants' Proposal & Intrinsic Evidence
U.S. Patent Application No. 17/227,802, Interview Summary (Aug. 9, 2021)	'069 patent FH: <ul style="list-style-type: none">• Application (Apr. 15, 2009)• Preliminary Amdt. (Nov. 12, 2009)• Preliminary Amdt. (Feb. 3, 2010)• Amdt. & Resp., Claims (June 1, 2010)• Non-Final Rejection (July 30, 2010)• Amdt. & Resp., Claims (Jan. 31, 2011)• Non-Final Rejection (May 12, 2011)• Amdt. & Resp., Claims (Aug. 11, 2011)• Notice of Allowance (Sept. 12, 2011)
U.S. Patent Application No. 17/227,802, Response to Office Action (Aug. 20, 2021)	
U.S. Application No. 12/424,367, Claims (June 1, 2010)	
U.S. Application No. 12/424,367, Non-Final Rejection (July 30, 2010)	
U.S. Application No. 12/424,367, Response to Office Action (Jan. 31, 2011)	
U.S. Application No. 12/424,367, Non-Final Rejection (May 12, 2011)	
U.S. Application No. 12/424,367, Response to Office Action (Aug. 11, 2011)	
US 2006/0008910 (Jan. 12, 2006)	
US 2009/0291131 (Nov. 26, 2009)	
US 7,799,565 (Sept 21, 2010)	
US 7,807,815 (Oct. 5, 2010)	
A. Akinc <i>et al</i> , <i>The Onpattro story and the clinical translation of nanomedicines containing nucleic acid based</i>	
	'359 patent FH: <ul style="list-style-type: none">• App., Specification, Claims, Abstract, Drawings (Oct. 5, 2011)• Preliminary Amdt., Remarks, Spec., Claims (Mar. 28, 2012)• Supp. Amdt., Remarks, Specification (Mar. 13, 2013)• Notice of Allowance (April 3, 2013)
	'668 patent FH: <ul style="list-style-type: none">• App., Specification, Claims, Abstract, Drawings (June 26, 2013)• Preliminary Amdt., Remarks, Spec., Claims (Nov. 6, 2013)• Notice of Allowance (Jan. 9, 2014)• Amdt. & Resp., Claims (Apr. 7, 2014)• Notice of Allowance (May 8, 2014)
	'435 patent FH <ul style="list-style-type: none">• App., Spec., Claims, Abstract, Drawings (Aug. 18, 2014)• Preliminary Amdt., Applicant Remarks, Claims (Feb. 26, 2015)• Non-Final Rejection (Oct. 28, 2015)• Amdt. & Resp., Claims (Jan. 27, 2016)

“mol % of the total lipid present in the particle”

(’069 Patent, Claims 1, 8, 15, 20, 21; ’359 Patent, Claims 1, 7, 9, 10, 11, 12, 13, 18, 19; ’668 Patent, Claims 1, 8, 10, 15; ’435 Patent, Claims 1, 4, 7, 8; ’378 Patent, Claims 1, 2, 7, 13, 18, 24, 25)

Plaintiffs' Proposal & Intrinsic Evidence ³	Defendants' Proposal & Intrinsic Evidence
<p>drugs, 14 Nature Nanotechnology 1084-1087 (December 2019)</p>	<ul style="list-style-type: none"> Notice of Allowance (Feb. 23, 2016)
<p>Uyechi-O'Brien, L. & Szoka, F., <i>Mechanisms for Cationic Lipids in Gene Transfer</i>, PHARMACEUTICAL GENE DELIVERY SYSTEMS, 83-86 (2003)</p>	<p>’378 patent FH:</p>
<p>Ambegia, E. et al., <i>Stabilized plasmid-lipid particles containing PEG-diacylglycerols exhibit extended circulation lifetimes and tumor selective gene expression</i>, 1669 Biochimica et Biophysica Acta 155-163 (2005)</p>	<ul style="list-style-type: none"> App., Spec., Claims, Abstract, Drawings (Apr. 12, 2021) Non-Final Rejection (June 14, 2021) Amdt. & Resp., Claims (Aug. 20, 2021) Notice of Allowance (Aug. 30, 2021) Interview (Aug. 3, 2021)
<p>Petition for <i>Inter Partes Review</i> of U.S. Patent No. 8,058,069, IPR2019-00554 (Jan. 9, 2019)</p>	
<p>Petitioner's Reply to Protiva's Response, IPR2019-00554 (Mar. 2, 2020)</p>	
<p>Declaration of Andrew S. Janoff, Ph.D. in Support of Moderna Therapeutics, Inc.'s Petition for <i>Inter Partes Review</i> of U.S. Patent No. 8,058,069, IPR2019-00554, Exhibit 1008 (Jan. 2, 2019)</p>	
<p>Declaration of Thomas J. Anchordoquy, Ph.D. in Support of Petitioner's Reply to Patent Owner's Response, IPR2019-00554, Exhibit 1020 (Mar. 2, 2020)</p>	
<p>Petition for <i>Inter Partes Review</i> of U.S. Patent No., 9,364,435, IPR2018-00739 (Mar. 5, 2018)</p>	
<p>Patent Owner's Response, IPR2018-00739 (Dec. 21, 2018)</p>	

“mol % of the total lipid present in the particle”

(’069 Patent, Claims 1, 8, 15, 20, 21; ’359 Patent, Claims 1, 7, 9, 10, 11, 12, 13, 18, 19; ’668 Patent, Claims 1, 8, 10, 15; ’435 Patent, Claims 1, 4, 7, 8; ’378 Patent, Claims 1, 2, 7, 13, 18, 24, 25)

Plaintiffs’ Proposal & Intrinsic Evidence³	Defendants’ Proposal & Intrinsic Evidence
<p>Petitioner’s Reply to Patent Owner Response, IPR2018-00739 (Mar. 22, 2019)</p> <p>Patent Owner’s Sur-Reply, IPR2018-00739 (Apr. 17, 2019)</p> <p>Declaration of Andrew S. Janoff, Ph.D. in Support of Moderna Therapeutics, Inc.’s Petition for <i>Inter Partes</i> Review of U.S. Patent No. 9,364,435, IPR2018-00739, Exhibit 1007 (Mar. 5, 2018)</p> <p>Declaration of Declaration of David H. Thompson, Ph.D. in Support of Arbutus’s Opposition to <i>Inter Partes</i> Review of U.S. Patent No. 9,364,435, IPR2018-00739, Exhibit 2004 (Dec. 21, 2018)</p> <p>Final Written Decision, IPR2018-00739 (Sep. 11, 2019)</p> <p><i>ModernaTX, Inc. v. Arbutus Biopharma Corp.</i>, 18 F.4th 1352 (Fed. Cir. 2021)</p>	

“a cationic lipid having a protonatable tertiary amine”
 (’378 Patent, Claim 1)

Plaintiffs’ Proposal & Intrinsic Evidence⁴	Defendants’ Proposal & Intrinsic Evidence
<p>Plain and ordinary meaning, <i>i.e.</i>, “a cationic lipid having a protonatable tertiary amine”</p> <p style="text-align: center;"><u>Intrinsic Evidence:</u></p> <p>’378 patent, 3:36-4:14, 4:38-5:67, 6:4-49, 13:20-39, 14:50-64, 15:35-49, 16:25-40, 16:65-17:3, 18:4-20, 18:21-23:29, 24:52-25:59, 30:7-67, 48:30-59:24, 70:1-88:10, claims 2, 7, 13, 18, 24, 25, 29, Figs. 1-22</p> <p>’069 patent, claims 1, 8, 14, 15, 20, 21</p> <p>’359 patent, claims 1, 7, 9, 10, 11, 12, 13, 18, 19</p> <p>’668 patent, claims 1, 8, 10, 15</p> <p>’435 patent, claims 1, 4, 7, 8, 12</p> <p>U.S. Patent Application No. 17/227,802, Claims (Apr. 12, 2021)</p> <p>U.S. Patent Application No. 17/227,802, Non-Final Rejection (June 14, 2021)</p> <p>U.S. Patent Application No. 17/227,802, Interview Summary (Aug. 9, 2021)</p> <p>U.S. Patent Application No. 17/227,802, Response to Office Action (Aug. 20, 2021)</p>	<p>“a cationic lipid having a protonatable tertiary amine comprising 50 mol % or more of the total lipid present in the finished lipid particle”</p> <p>Moderna contends that the recited “<u>mol%</u>” range is understood as the exact range recited in the claim.</p> <p style="text-align: center;"><u>Intrinsic Evidence:</u></p> <p>’378 patent, at Title; Abstract; Claim 1 3:36-4:14; 6:6-33; 11:42-12:7; 13:20-39; 14:55-64; 18:21-19:65; 24:52-25:59; 48:32-51:33; 59:27-51; 70:1-47; Examples 1-11; all refs incorporated by reference</p> <p>’069 patent (intrinsic evidence from the specification and FH cited above for the “mol % of the total lipid present in the particle” term)</p> <p>’378 patent FH:</p> <ul style="list-style-type: none"> • App., Spec., Claims, Abstract, Drawings (Apr. 12, 2021) • Non-Final Rejection (June 14, 2021) • Amdt. & Resp., Claims (Aug. 20, 2021) • Notice of Allowance (Aug. 30, 2021) • Interview (Aug. 3, 2021) <p>Prov. App. No. 61/045,228</p> <p>IPR2018-00739, Papers 2, 12, 15, 24, 28, 34, 41, 49, 50, 51, 55, Exs. 1007, 1019, 1020, 1021, 1022, 2009, 2028, 2040; Appeal Briefing and Opinion</p>

⁴ In providing the following disclosures, Plaintiffs do not admit the status of any cited reference as intrinsic evidence.

“a cationic lipid having a protonatable tertiary amine”
 (’378 Patent, Claim 1)

Plaintiffs’ Proposal & Intrinsic Evidence⁴	Defendants’ Proposal & Intrinsic Evidence
U.S. Application No. 12/424,367, Claims (June 1, 2010)	
U.S. Application No. 12/424,367, Non-Final Rejection (July 30, 2010)	IPR2019-00554, Papers 1, 7, 8, 15, 21, 30, 39, 40, Exs. 1008, 1020, 1025, 2001, 2002, 2003, 2004, 2005, 2006, 2028, 2030, 2031, 2033, 2043; Appeal Briefing and Opinion
U.S. Application No. 12/424,367, Response to Office Action (Jan. 31, 2011)	
U.S. Application No. 12/424,367, Non-Final Rejection (May 12, 2011)	
U.S. Application No. 12/424,367, Response to Office Action (August 11, 2011)	
Petition for <i>Inter Partes Review</i> of U.S. Patent No. 8,058,069, IPR2019-00554 (Jan. 9, 2019)	
Petitioner’s Reply to Protiva’s Response, IPR2019-00554 (Mar. 2, 2020)	
Declaration of Andrew S. Janoff, Ph.D. in Support of Moderna Therapeutics, Inc.’s Petition for Inter Partes Review of U.S. Patent No. 8,058,069, IPR2019-00554, Exhibit 1008, (Jan. 2, 2019)	
Declaration of Thomas J. Anchordoquy, Ph.D. in Support of Petitioner’s Reply to Patent Owner’s Response, IPR2019-00554, Exhibit 1020 (Mar. 2, 2020)	
Petition for <i>Inter Partes Review</i> of U.S. Patent No., 9,364,435, IPR2018-00739 (Mar. 5, 2018)	
Patent Owner’s Response, IPR2018-00739 (Dec. 21, 2018)	

“a cationic lipid having a protonatable tertiary amine”
 (’378 Patent, Claim 1)

Plaintiffs' Proposal & Intrinsic Evidence ⁴	Defendants' Proposal & Intrinsic Evidence
<p>Petitioner's Reply to Patent Owner Response, IPR2018-00739 (Mar. 22, 2019)</p> <p>Patent Owner's Sur-reply, IPR2018-00739 (Apr. 17, 2019)</p> <p>Declaration of Andrew S. Janoff, Ph.D. in Support of Moderna Therapeutics, Inc.’s Petition for <i>Inter Partes</i> Review of U.S. Patent No. 9,364,435, IPR2018-00739, Exhibit 1007 (Mar. 5, 2018)</p> <p>Declaration of Declaration of David H. Thompson, Ph.D. in Support of Arbutus’s Opposition to <i>Inter Partes</i> Review of U.S. Patent No. 9,364,435, IPR2018-00739, Exhibit 2004 (Dec. 21, 2018)</p> <p>Final Written Decision, IPR2018-00739 (Sep. 11, 2019)</p> <p><i>ModernaTX, Inc. v. Arbutus Biopharma Corp.</i>, 18 F.4th 1352 (Fed. Cir. 2021)</p>	